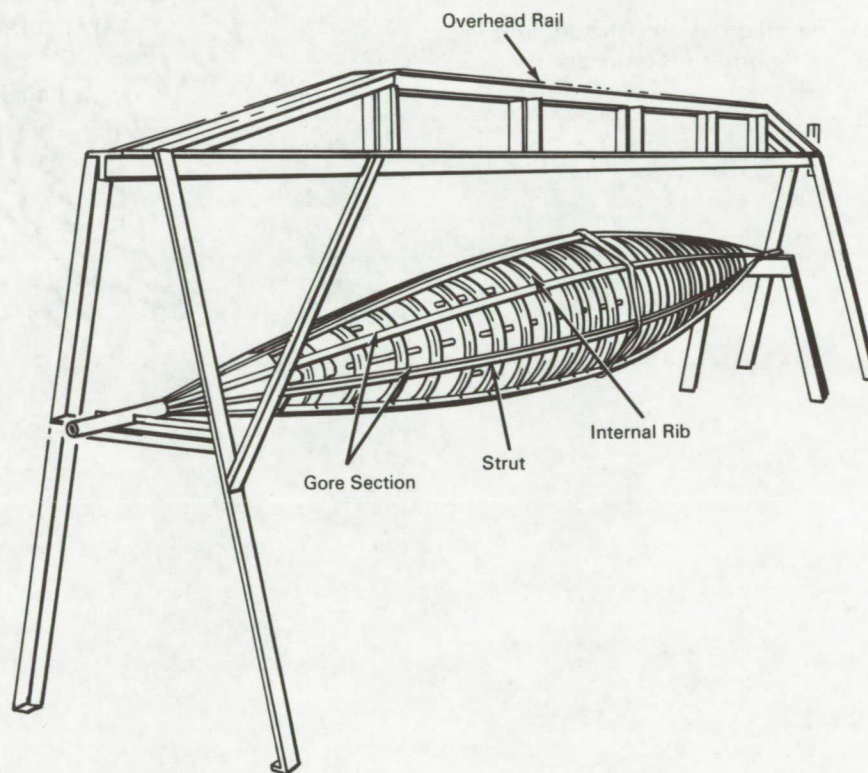


NASA TECH BRIEF



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Rotating Mandrel Speeds Assembly of Plastic Inflatables



The problem:

The accurate cutting, forming, and sealing of plastic gores to assemble an inflatable surface of revolution such as a sphere. Previous methods involved many manual operations that required much handling of the material and resulted in high cutting waste. The tolerances allowed at each operation caused tolerance buildup making assembly difficult and creating undesirable irregularities at seams.

The solution:

A rotating mandrel on which the gores are laid out, cut, and then sealed without being removed until the final seam is reached. Tolerances are tightly controlled since they are directly related to mandrel configuration.

How it's done:

Each gore is defined on the mandrel by two slots that provide a cutting and a sealing guide. This con-

(continued overleaf)

figuration permits cutting and sealing of the material continuously until the required number of gores are fastened together.

In operation, the plastic material is held in place across a gore section of the mandrel with pressure-sensitive tape and cut on both sides along the slots in the mandrel. The next adjacent section is then held and cut in the same way and the two sections joined with a heat sealer. This process continues around the mandrel until all sections are cut and joined. The joined sections are removed from the mandrel and the last seam is heat sealed to complete the surface of revolution.

Notes:

1. This mandrel should be of interest to plastics manufacturers who fabricate inflatables with surfaces of revolution.
2. The mandrel may be made in any size as long as the gore sections correspond to the surface desired.

3. Hand taping and sealing may be used although an automatic unit suspended from the rail above the mandrel would make this a volume production tool.

4. Inquiries concerning this invention may be directed to:

Technology Utilization Officer .
Langley Research Center
Langley Station
Hampton, Virginia, 23365
Reference: B66-10137

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C., 20546.

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